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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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SORKIN, DAVID L

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* KIMIO INOUE

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Appeal 2009-0242  
Application 09/767,885  
Technology Center 1700

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Decided:<sup>1</sup> February 17, 2009

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Before BRADLEY R. GARRIS, LINDA M. GAUDETTE, and  
MARK NAGUMO, *Administrative Patent Judges*.

GAUDETTE, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 10-13, the only claims pending in the Application.<sup>2</sup> (Appeal Brief filed July 24, 2007 (“Br.”) 1, § III.) We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

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<sup>1</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 CFR § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

<sup>2</sup> An oral hearing was held on February 11, 2009.

Independent claim 10 is illustrative of the invention and is reproduced below:

10. A twin-screw extruder for mixing and dispersing a material to be kneaded into a product having a desired state of kneading and extruding the product from a tip end thereof, said extruder comprising:

a barrel having two intercommunicating chambers and an extrusion opening at a tip end thereof; and

a screw set mounted in each of said chambers so as to not completely mesh with one another, each of said screw sets comprising:

a rotor segment comprising at least one kneading rotor, said kneading rotor having a plurality of kneading blades which provide a plurality of tip clearances different from each other at least in the circumferential direction, said kneading rotor having a constant sectional shape in the axial direction, as viewed in a section transverse to the axial direction, except for crest portions of said kneading blades; and

a screw segment comprising at least one screw blade, said screw segment, except for crest portions of the screw blades thereof, having the same sectional shape as said at least one rotor segment comprising at least one kneading rotor, as viewed in a section transverse to the axial direction, except for the crest portions of said kneading blades.

The Examiner relies on the following prior art reference to show unpatentability (Examiner's Answer mailed Sept. 28, 2007 ("Ans.") 2, § (8)):

Inoue            5,947,593            Sep. 7, 1999

Appellants request review of the sole ground of rejection: claims 10-13 under 35 U.S.C. § 103(a) as obvious over Inoue.

#### ISSUE

Have Appellants shown reversible error in the Examiner's finding that that the claimed "screw segment" reads on Inoue's rotor segment 1b?

#### FINDINGS OF FACT

1. According to Appellants' Specification,

a twin-screw extruder is [generally] constructed by providing a pair of screw sets in a barrel having a chamber extending from one side to the other side, each of the screw sets being a combination of kneading segments, such as kneading rotors and kneading disks, and screw segments.

(Spec. 1:9-12.)

2. Figure 1A of the Specification shows an embodiment of Appellants' twin-screw extruder in which

each of the screw sets 1 and 1 comprises two-blade type screw segments 11 for pushing the material under kneading out to the opposite side, two-blade type rotor segments 12 for mixing and dispersing the material under kneading, and two-blade type kneading disk segments 13 for primarily mixing the material under kneading.

(Spec. 8:13-16.)

3. Inoue discloses a twin-screw kneading apparatus comprising a pair of screw sets 1 and 1 (col. 4, ll. 40-42), each set 1 having “a screw segment 1a which pushes the material to be kneaded to the other side and an integrated type rotor segment 1b which kneads the material to be kneaded” (col. 5, ll. 9-12). Inoue further discloses that “[t]he rotor segment 1b has three kneading blades 7, 7 and 7” (col. 5, ll. 21-22).
4. Inoue also refers to rotor segments 1b as “kneading segments” (col. 8, l. 41). (*See* Ans. 5.)
5. The Examiner finds that both the claim 10 “rotor segment” and “screw segment” limitations read on Inoue’s rotor segments 1b. (Ans. 5.) The Examiner concedes that Inoue does not expressly refer to the rotor segments 1b as “screw segments.” (Ans. 5.) However, the Examiner contends that because Inoue’s rotor segments 1b have

- “spiral angles” (Ans. 5 (citing Inoue col. 3, ll. 25-27)), they “are within the scope of the [claim 10] term ‘screw segment’” (Ans. 5).
6. Appellants argue that the Examiner erred in interpreting the claim term “screw segment” as encompassing Inoue’s rotor segments 1b. (App. Br. 4:3-5.) Appellants rely on the Declarations of Dr. Kimio Inoue<sup>3</sup>, one of the named inventors in the present Application, to establish that one of ordinary skill in the art would understand the claim terms “screw segment” and “rotor segment” as referring to specific structural elements which are separate and distinct from one another. (App. Br., para. bridging 3-4.)
7. Dr. Inoue testified that “‘rotor segment’ is a term of art in the field of plastic kneaders/extruders” which describes “a structure [used] to optimize kneading of the type of plastic material to be extruded” (Ex. 1, ¶¶ 6 & 7; *see also*, Ex. 2, ¶¶ 6 & 7 (discussing the meaning of “kneading rotor”).)
8. Dr. Inoue also testified that “‘screw segment’ is a term of art in the field of plastic kneaders/extruders” which describes “a structure [used] to optimize the axial advancement of plastic material.” (Ex. 1, ¶¶ 8 & 9; Ex. 2, ¶¶ 8 & 9.)
9. According to Dr. Inoue,
- while a rotor segment may axially advance the plastic material during the kneading thereof, and may have a special configuration, in light of the well understand [sic] functional and structural distinction in the art between a rotor segment and a screw segment, those skilled in the

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<sup>3</sup> Copies of the Inoue Declarations are provided in the Evidence Appendix to Appellants’ Appeal Brief as Exhibits 1 & 2 (hereinafter “Ex. 1” and “Ex. 2”).

art would not identify an element designed and used as a rotor segment in an extruder as a “screw segment.”

(Ex. 1, ¶ 10; *see also*, Ex. 2, ¶¶ 10 & 11.)

## PRINCIPLES OF LAW

During examination, claims terms must be given “their broadest reasonable construction consistent with the specification.” *In re Icon Health and Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007). The broadest reasonable interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach. *In re Cortright*, 165 F.3d 1353, 1358 (Fed. Cir. 1999).

Because the meaning of a claim term as understood by persons of skill in the art is often not immediately apparent, and because patentees frequently use terms idiosyncratically, the court looks to “those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean.” Those sources include “the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.”

*Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005).

## ANALYSIS

Resolution of the issue presented in this Appeal turns on interpretation of the claim 10 term “screw segment.” We are in agreement with Appellants that the Examiner has applied an overly broad interpretation of this claim term as encompassing the structure of any segment in Inoue’s screw set, i.e., either or both of Inoue’s screw segments 1a and rotor segments 1b.

Moreover, the Specification supports Appellants' proposed interpretation of "screw segment" as describing a specific structure used to advance material through a kneader/extruder. We agree that one of ordinary skill in the art would not understand this term as encompassing a "rotor segment" which, as used in appealed claim 10 and the Specification, describes a separate and distinct structure used to knead/mix material. This interpretation of the term "screw segment" is likewise consistent with its use in the applied prior art.

Based on our interpretation of the claim term "screw segment," we are in agreement with Appellants that the Examiner's obviousness determination is based on an unsupported finding that the "screw segment" of appealed claim 10 reads on Inoue's rotor segments 1b. Therefore, we do not sustain the Examiner's rejection of claims 10-13 under 35 U.S.C. § 103(a) as obvious over Inoue.

#### CONCLUSION

The decision of the Examiner rejecting claims 10-13 is reversed.

REVERSED

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